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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,985	12/30/2003	David B. Olson	59460US002	6610

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EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/747,985	OLSON ET AL.	
	Examiner	Art Unit	
	Michael Bernshteyn	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5 and 6-30* is/are pending in the application.

4a) Of the above claim(s) *2-5,7-12,21-25 and 27-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,13-20,26 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 8, 2006 has been entered.

2. This Office Action is being provided in reply to the amendment accompanying the foregoing RCE. Applicants have amended claims 1, 13 and 26, claims 2 and 5 have been cancelled. Claims 21-25 and 27-29 have been withdrawn.

3. Claims 1, 6, 13-20, 26 and 30 are active.

Claim Rejections - 35 USC § 103

4. The test of this section of Title 35, U.S.C. not included in this action can be found in a prior Office Action.

5. Claims 1, 6, 13-20, 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (U.S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,855,983).

Olson discloses coatings; composite structures containing coatings, and compositions for preparing and methods of preparing coatings and composite

structures, wherein the compositions comprise inorganic oxide particles and polymerizable brominated compounds, and coatings comprise inorganic oxide particles and a brominated polymer (abstact).

With regard to the limitations of instant claims 1, 13-14, 16-17, 19-20 and 26, Olson discloses the compositions, which contain ingredients including inorganic oxide particles and a curable binder precursor, wherein the binder precursor includes a polymerizable brominated compound. The polymerizable brominated compound can contain a brominated monomer having a relatively high index of refraction, e.g., at least about 1.5, and/or can contain at least one aromatic, brominated (meth)acrylate compound. The composition can be cured or polymerized to form a hardcoat composition including a brominated polymeric matrix having dispersed therein, or surrounding the inorganic oxide particles (col. 2, lines 29). Particularly preferred polymerizable brominated compounds comprise polymerizable aromatic, brominated (meth)acrylate compounds having an aromatic portion, a brominated portion (which may or may not be the aromatic portion), and a (meth)acrylate moiety. An aromatic, brominated (meth)acrylate compound may be mono-functional or multi-functional with respect to the (meth)acrylate moiety (col.4, lines 15-20). An example of a preferred class of polymerizable aromatic, brominated (meth)acrylate compound is the class of aromatic, brominated (meth)acrylate monomers comprising a six-membered phenyl group preferably substituted by one or more bromine substituents, and most preferably substituted by an alkyl substituent. The aromatic portion of the monomer may be connected directly to the (meth)acrylate moiety, or the aromatic portion may be

connected to the (meth)acrylate moiety through a divalent organic linking group (L) (col. 4, lines 53-63).

Olson discloses that the most preferable first monomer comprising a major portion of 2-propeonic acid, (1-methylethylidene)bis[(2,6,dibromo-4,1-phenylene)oxy(2-hydroxy-3,1-propanediyl)] ester as the reaction product **of tetrabromobisphenol A diglycidyl ether** and **(meth) acrylic acid** which is known under the trade designation '**RDX-51027**" and used in the table 1, examples 1 and 3 (col.26, lines 18-55). This component is readable as component a) in the instant claim 1. Other examples of polymerizable brominated compounds that can be useful in the binder precursor include but are not limited to tribromophenyl (meth)acrylate, pentabromophenyl (meth)acrylate, tribromophenylethyl (meth)acrylate, bromomethyl styrene, and brominated bisphenol A (meth)acrylate compounds (col. 8, lines 28-33).

Olson discloses that the binder precursor can optionally include one or more polymerizable non-brominated compound (e.g., a monomer, dimer, oligomer, pre-polymer, or polymer), which can react with other components of the binder precursor to provide a brominated polymeric matrix. Such non-brominated compounds can include low molecular weight reactive **diluents** which can modify flow properties of the composition, and **multi-functional crosslinking agents** to crosslink polymers upon reaction and provide a highly crosslinked matrix (col. 10, line 67 through col. 11, line 13). Examples of suitable monofunctional non-brominated polymerizable compounds include 2-hydroxyethyl (meth)acrylate, 2-methylbutyl (meth)acrylate, (meth)acrylic acid, itaconic acid, **2-phenoxyethyl (meth)acrylate**, etc. (col. 11, lines 35-45), thus naming

the species of the instant claims, including those elected by Applicant. **2-phenoxy)ethyl (meth)acrylate** is readable as component c) in the instant claim 1.

A multifunctional non-brominated compound can be any multifunctional non-brominated compound that can react with the other components of the binder precursor to produce a polymer. Preferred multifunctional non-brominated compounds comprise ester (meth)acrylate compounds such as difunctional (meth)acrylate esters of a polyhydric alcohol, and combinations thereof. Of these, trifunctional and tetrafunctional esters of (meth)acrylate esters of polyhydric alcohol can be especially preferred. Examples of suitable multifunctional ester (meth)acrylates include poly(meth)acrylic acid esters of polyhydric alcohols including, for example, **tri(meth)acrylic acid esters of pentaerythritol**, etc. Particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of **pentaerythritol** (col. 12, line 39 through col. 13, line 13). **Pentaerythritol tri(meth)acrylate** is readable as component b) in the instant claim 1.

Olson discloses examples of photoinitiators that generate a free radical source when exposed to visible light radiation include, but are not limited to mixtures of camphorquinones and organic amines, and bisacyl phosphoric oxides. Examples of photoinitiators that generate a free radical source when exposed to ultraviolet light include, but are not limited to, organic peroxides, azo compounds, quinones, etc. (col. 17, lines 23-30). A **photoinitiator** is readable as component d) in the instant claim 1.

Olson discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can include from **about 20 to about 80 parts by**

weight (pbw) polymerizable **brominated** compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines 19-22).

With regard to the limitations of instant claim 6, Olson discloses that suitable monofunctional non-brominated polymerizable compounds include 2-(phenoxy)ethyl (meth)acrylate (col. 11, lines 35-45), and the binder precursor can also contain polymerizable **non-brominated** compound in useful amounts, e.g., from **about 20 to 80 pbw** , preferably about 50 to 70 pbw, based on 100 pbw binder precursor, which is within the claimed range (col. 13, lines 31-33).

With regard to the limitations of instant claims 15, and 18, Olson discloses that 2-(phenoxy)ethyl (meth)acrylate as monofunctional (meth) acrylate diluent is a liquid at ambient (room) temperature with low volatility and $T_g = 54^0C$ (col. 11, line 42).

With regard to the limitations of instant claims 1, 13 and 30, Olson does not disclose a brightness enhancing film comprising a linear array of regular right prisms, wherein the prisms are prepared from the reaction product.

Williams discloses a flame resistant composite film includes the first layer and the second layer that are joined together. The first layer has a light transmission of at least 93% and is substantially constructed from a radiation-cured polymer and a flame retardant material. The second layer is constructed from thermoplastic polymer resin (abstract).

With regard to the limitations of instant claims 1,13 and 30, Williams discloses that the brightness enhancement film 11 includes an array of prisms typified by prisms 22, 24, 26, and 28, as illustrated in FIG. 2. Each prism, for example, such as prism 22,

has a first facet 30 and a second facet 32. The prisms 22, 24, 26, and 28 are formed on a body portion 34 that has a first surface 36 on which the prisms are formed and a second surface 38 that is substantially flat or planar and opposite the first surface. **A linear array of regular right prisms is preferred for both optical performance and ease of manufacture** (col. 2, lines 49-59).

Both references are analogous art because they are from the same field of endeavor concerning new brightness enhancement film.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a linear array of regular right prisms as taught by Williams in Olson's brightness enhancing film, wherein the prisms are prepared from the reaction product because a linear array of regular right prisms is preferred for both optical performance and ease of manufacture (US'983, col. 2, lines 50-52), and thus to arrive at the subject matter of instant claims 1, 13 and 30.

Response to Arguments

6. Applicants traverse the rejection under 35 U.S.C. § 103(a) of claim 30 as being unpatentable over Olson et al. (U. S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,855,983). Applicant's arguments have been fully considered but they are not persuasive.

7. Applicants contend that Olson et al. describes coatings and composite structures containing coatings etc. The Applicant further notes that Olson et al. recites, "A ceramer composition, optionally in the form of a ceramer solution including added solvent, can

be applied to a substrate by techniques such as spray coating, knife coating, dip coating, flow coating, roll coating, and the like" (col. 19, lines 22-25). In contrast, claims 1 and 13 are directed to a brightness enhancing film, wherein the prisms are prepared from the claimed polymerizable composition. Claims 1 and 13 have been amended to clarify this distinction (pages 7 and 8).

8. It is noted that Williams clearly discloses that a linear array of regular right prisms is preferred for both optical performance and ease of manufacture (col. 2, lines 49-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a linear array of regular right prisms as taught by Williams in Olson's brightness enhancing film, wherein the prisms are prepared from the reaction product with reasonable expectation of success.

9. Applicants contend that each of the independent claims 1, 13 and 26, has been amended to recite 5 to 30 wt.% of a crosslinking agent comprising at least three (meth)acrylate functional groups. The Applicant submits that neither Olson et al. or Williams et al. describe a polymerizable composition what comprises at least 60 wt-% of one or more of first monomers as set forth in the claims in combination with 5 to 30 wt.% of a crosslinking agent comprising at least three (meth)acrylate functional groups (page 8, the last paragraph).

It is noted that Olson clearly discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can include from about 20 to about 80 parts by weight (pbw) polymerizable brominated compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines

19-22). This compound is readable as compound a) in instant claim 1, as compound i) in instant claim 13 and as compound a) in instant claim 26.

Olson also clearly discloses the preferred multifunctional non-brominated compounds comprise ester (meth)acrylate compounds such as difunctional (meth)acrylate esters of a polyhydric alcohol, and combinations thereof. Of these, trifunctional and tetrafunctional esters of (meth)acrylate esters of polyhydric alcohol can be especially preferred. Examples of suitable multifunctional ester (meth)acrylates include poly(meth)acrylic acid esters of polyhydric alcohols including, for example, **tri(meth)acrylic acid esters of pentaerythritol**, etc. Particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of **pentaerythritol** (col. 12, line 39 through col. 13, line 13). **Pentaerythritol tri(meth)acrylate** is readable as a crosslinking agent b) in the claims 1, 13 and 26.

Olson discloses that preferably the binder precursor includes both mono- and multi-functional polymerizable brominated (meth)acrylate monomer, e.g., from about 10 to 20 parts by weight monofunctional polymerizable brominated compound and from about 20 to 30 pbw difunctional polymerizable brominated compound based on 100 pbw binder precursor which is within the claimed range (col. 13, lines 25-31).

It is noted that the amount of the weight ratio of the components A and B is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per ***In re Boesch and Slaney*** 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at

1382: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

10. It is noted that during the interview held on August 22, 2006, the attorney agreed to file the declaration to overcome the art rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn
Examiner
Art Unit 1713

MB
08/25/2006

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